

## Some new forms of *Lepidoptera* from Massachusetts.

By WILLIAM REIFF, Forest Hills Sta., Boston, Mass.

(Plate X.)

The season of 1912 yielded a number of atypical lepidopterous forms, six of which are described in the present paper.

*Phyciodes tharos* Dru. f. nov. *reaghi* (Figs. 1 and 2).

One ♀ derived from summer form *morpheus* Fab. Upper surface of fore wings much blackened in basal and median spaces, with light spots obsolete in marginal band. The latter very broad and black, this color extending over upon the costa for about one-half its length. Black markings near apex of primaries represented by a few black scales only. Black median line replaced by a broad, dull black, indefinite shading. The hind wings, on upper surface, have all markings in basal space obsolete. There is a black powdering in an indefinite, broad line at the base of these wings, parallel with the inner margin. Marginal band of secondaries uniform with primaries as regards width and intensity of shading. Exterior line of spots present. Parallel with this is a broad, black band extending into discal area and obscuring black spot normally present, in exterior line, near apex. At this point the broad band joins the marginal band.

On lower surface of primaries there are no black markings whatever, while all the colors are paler than in the normal form. Marginal band consists of four, large, irregular spots, alternately light yellow and reddish violet in color. This band is distinctly outlined by a narrow, uneven, reddish line. All other markings of marginal band are obsolete. The secondaries resemble somewhat, in pattern, the spring form *marcia* Edw. The ground tint is straw color, with three irregular, somewhat confluent, reddish violet spots of different sizes extending in series across discus from marginal band towards base. Two spots, in exterior band of upper surface, reappear faintly on lower surface, and are surrounded by a whitish tint. Corresponding with the inner margin of the black median band of the upper side of secondaries, is a wavy, reddish line on the under side. This line begins near the inner margin and connects the large, reddish spot near the discus with the spot nearest the outer margin. The character of the marginal band of secondaries is similar to that of the primaries. Beginning at the apex it is composed of straw colored, lavender, whitish, brownish lavender and light yellow spots of different sizes. The marginal band is outlined like that of the primaries.

This form finds its closest relative in f. *packardii* Saunders.

*Type*, 1 female, Franklin, Mass., Aug. 4, 1912; in coll. of Dr. Arthur L. Reagh, after whom I take pleasure in naming this aberrant form.

The above described specimen was taken by Dr. Reagh on the sandy shore of a pond, with full southern exposure, well protected from cold winds by woods and a hill. I, therefore, consider high temperature as the probable cause of this aberrant form, as in such a locality the intense summer heat could readily act on the chrysalis during its sensitive stage. Moreover, similar forms have already been artificially produced by heat in experiments on the related genus *Melitaea*.

**Heodes hypophlaeas** Boisd. f. nov. **caeca** (Figs. 3 and 4).

1 ♂ typical, 1 ♂ transitional.

Upper side. Exterior band of black spots on primaries completely wanting, except a faint, minute spot near the costa; in all other respects normal.

Underside. Spots in exterior band of primaries more or less obsolete and faint. Exterior band of black spots of secondaries completely wanting, also with the exception of a faint minute spot near the costa.

The typical specimen was taken by the author May 26, 1912, in a somewhat swampy meadow near the Blue Hills in Massachusetts. The transitional form was taken by Mr. Rudolf C. B. Bartsch, May 25, 1912, at West Roxbury, Mass., also in a somewhat swampy meadow.

*Type* in the author's collection. *Cotype* in Mr. Bartsch's collection.

I use for this form the same name, which has been proposed by Prof. Courvoisier, of Basel (Switzerland), the authority on Lycaenidae, for all the so-called "verarmten Formen" (*formae parvipunctae*) of this family, meaning forms with reduced or wanting maculation. In the palaearctic fauna we already know a great number of such forms and the recent description of such a form of the palaearctic *Chrysoph. alciphron gordius*\* is almost identical in its character with the above described form.

**Malacosoma disstria** Hb. f. nov. **astriata** (Figs. 5 and 6).

Upper and lower surfaces of both sets of wings and also thorax and abdomen of a uniform pale, straw-yellow color with no trace of

\* Busse, R.—*Chrysophanus alciphron* var. *gordius* f. *caeca* Courv.—Entomol. Zeitschrift XXVI, No. 26, 1912. Frankfurt a-M.

stripes or spots. Fringes of wings uniformly whitish. Sexes alike in coloration, but antennae of male blackish, of female yellowish.

One male from Lincoln, Mass., July 13, 1912; taken by the author from a window of the railroad station; 1 male from West Roxbury, Mass., July 15, 1912, taken by Mr. Walter F. Eastman at light; 1 female, July 2, 1912, reared by the author from one of a number of caterpillars collected at Concord, Mass.

*Type*—1 male, 1 female, in the author's collection; 1 male cotype in Mr. Eastman's collection.

These albinic forms are undoubtedly inhibition products, the process of coloration of the imago during its last pupal stage probably having been inhibited or arrested by outside influences. Accidentally I happened to spill some chloroform into the box containing several hundred *disstria* pupae as I was killing the first specimens which had emerged. Since the box was covered with netting and the chloroform was thus allowed to escape quickly, my misfortune did not affect the life of the pupae; I obtained, however, from these pupae after two days, and then for the next four days every day, one or two imagos which were more or less crippled and *all of which showed this pale albinic coloration*. The one female specimen above described was the only one which developed perfectly. The pupae which gave rise in the field to the two albinic males may have been situated at places little protected from cold or moisture.

**Malacosoma disstria** Hb. f. nov. **anita** (Fig. 7).

Wings, antennae, thorax and abdomen uniformly chocolate brown. Two spots in fringes of primaries near apex white, all other parts chocolate brown. Exterior line of primaries faintly visible on both surfaces. Above secondaries are without marking; on lower surface discal line is narrow, diffused, and of a pale buff color.

One male, July 2, 1912, reared by the author from one of a number of caterpillars collected at Concord, Mass.

*Type* in the author's collection.

I take pleasure in naming this form after my wife, whose valuable help in rearing hundreds of caterpillars I appreciate very much.

I am not aware that intensifications so well marked in this case can be produced by causes which may have given rise to the pale forms previously described.

**Phigalia olivacearia** Morr. f. nov. **mephistaria** (Figs. 8 and 9).

Wings, thorax and abdomen blackish, smoky. Antennae normally colored. Fringes of inner margin of secondaries whitish, otherwise like the wing surface. Beneath the wings are a shade lighter than above. Only a few faint traces of normal marking of wings, but veins darker than ground color of wings.

One male from West Roxbury, Mass., April 7, 1912; taken by Mr. Walter F. Eastman in the day time from an electric light post.

*Type* in Mr. Eastman's collection.

Among the North American Geometridae melanistic forms are almost unknown. There are, however, large numbers of such forms in the palaearctic fauna, and from year to year new melanistic forms of Geometridae continue to be discovered. Fifty years ago only one melanistic Geometrid was known, the black *doubledayaria* of *Amphidasis betularius*, and this form at that time from England only. Now we find *doubledayaria* and many other melanistic forms of palaearctic Geometridae distributed over an increasingly larger area of central Europe. Considered from a phylogenetical standpoint, this yearly increase of melanistic forms is of the greatest interest, and exact observations in localities, where such forms appear and the publication of all details of capture is very important. Up to date we are entirely incapable of stating any rule as to the origin of melanistic forms in the field and its increasing occurrence, although a number of theories have been suggested as to its cause, but none of them as yet has been sufficiently supported. We only know that melanistic forms are certainly neither pathological nor degenerative products (as many albinic forms are), for melanistic forms are as a rule more strongly built and more resistant towards climatic influences, etc., than their non-melanistic ancestors.

We know two kinds of black coloration: nigrism, which originates when the black (dark) markings of a wing become more or less enlarged, and melanism, which signifies an in-

crease in the number of dark scales and the pattern remains unchanged. Often, however, the melanistic process is so complete that the markings are entirely obscured. I consider here only the second kind of black coloration, namely melanism affecting the Geometridae. Nigristic forms are products of heat or cold, and they also can be produced artificially by temperature experiments. However, the form described above represents the type of a special subdivision of melanistic forms. For the markings have disappeared almost entirely in this case, while in other cases of melanism they remain unchanged. The markings are here not obscured by dark scales as might be supposed, for the coloration is of a dark *smoky* color and not dense enough to hide markings, if such were present.

I propose to express this subdivision of melanistic forms (appearance of dark scales, together with disappearance of wing markings) by the collective term "*formae melanoticae simplices*."

**Nyctobia anguilineata** Gr. f. nov. **eastmani** (Fig. 10).

Primaries above white. The following markings are present: faint brown basal line, brown median band not very strongly defined, but appearing distinct on account of the light wing coloration; a terminal line of brown dots.

Secondaries above white and hyaline, becoming slightly dusky towards the outer margin; no markings, except a very faint and minute black dot at the discus near costa.

Beneath, all wings white and hyaline with no markings, except appearance of the minute black dot of the secondaries and this is even fainter than above.

Head, thorax and abdomen grayish-white, antennae brown.

One male from West Roxbury, Mass., April 28, 1912; taken by Mr. Walter F. Eastman from a hemlock tree. I take pleasure in naming this form after the collector.

*Type* in Mr. Eastman's collection.

I regard this form as an albino of a form parallel to the f. *reiffii* Sw. of *Nyctobia limitata*, and it may be developed through the influence of low temperature upon the pupa shortly before the coloration process of the wings had begun.

Finally one word may be said concerning the naming of in-

dividual forms or "sports." Unfortunately we meet quite often still with the old view that the naming of "aberrations, mutations," etc., is of no value. In opposition to this view I wish to say that we know a species only, if we are acquainted with *all* of its forms and their causes. In order to make all the forms known and to separate them from each other it is necessary to mark them in some way. Since, however, a designation of forms by letters or numbers cannot be carried out, we are obliged to give them names. Of course it is necessary only to characterize the extremes of each variation. Transition forms hardly need special names, or only in exceptional cases, as, for instance, for defining forms which develop at certain temperatures or for other definite causes.

The figures on Plate X are a little less than natural size and a shade too light.

---

### The Species of *Nehalennia* (Odonata),

Including one from the eastern United States hitherto undescribed.

By PHILIP P. CALVERT, Ph.D.,

University of Pennsylvania, Philadelphia, Pa.

The genus *Nehalennia* was established by de Selys in 1850 for the European *Agrion speciosum* Charp. In his synopsis of the legion Agrion in 1876 he included within *Nehalennia* the following seven species: *atrinuchalis* Selys (Shanghai), *speciosa* Charp. (Europe), *irene* Hagen (United States), *sophia* Selys, 1876 (Province of Minas, Brazil), *posita* Hagen (United States), *denticollis* Burm. (Mexico), and *lais* Selys (Mexico). In 1895 Morse described *N. gracilis* from Massachusetts. Calvert removed *denticollis* to *Ischnura* Charp. in 1898 and *lais* to *Anisagrion* Selys in 1902. In 1903 Needham transferred *posita* to *Ischnura*. Five described species thus remain in *Nehalennia*. References to the literature are given in the catalogues of Kirby and of Muttkowski. Dr. E. M. Walker has just published the differentials of the larvae of *N. irene* and *gracilis*.\*

---

\*Can. Ent., XLV, p. 61, pl. I, figs. 1-3. June, 1913.